Research Report

Evaluating Mine Land Reclamation Policy In Indonesia : The Case Study Of East Kalimantan Province

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ABSTRACT

East Kalimantan, a province with great potential in mining sector, particularly coal, currently has about 19.5 billion tons of coal reserves. There are currently 1404 mining licenses consist of 427 operation licenses, and 977 exploration licenses. Statistic shows that there are approximately 1000 km² of land disturbed by mining activities, where only around 34.012,42 hectares that has been reclaimed (about 34%) in 2013. This issue is of particular concern to local parliaments that finally issued local regulation number 8 of 2013 which is more stringent in regulating mine land reclamation. However, instead of reducing environmental impact, this regulation is considered by some environmentalists to be ineffective due to unresponsive government while environmental cases continue to occur. The focus of this research is evaluating the mine land reclamation policy in East Kalimantan based on framework developed by Europe Environmental Agency (EEA) through four levels of evaluation; instrumental, institutional, behavioural, and outcome. Using reclamation rate as main indicator, The results of the analysis show that there is no significant increase in reclamation rate after the regulation was issued compared to before the regulation era, as the reclamation ratio of disturbed land actually decreased from 67.91% to 62.98% while the revegetation ratio to disturbed land increased slightly from 42.55% to 43.29%. Other interesting facts, although the disturbed area doubled in size after the regulation issued, the company's reclamation guarantee only increased by about 20%, while 3 of the 7 members of the reclamation commision had resigned also quite popular topic and raising various interpretations.

Keywords : East Kalimantan, mining, reclamation, policy, commission

INTRODUCTION

1.1. Background

Environmental issues have been in the spotlight of society particularly after the Rio de Janeiro Earth Summit in 1992 promoted by The United Nations Conference on Environment and Development (UNCED). Moreover, the mining activity which is the extraction of mine commodity from the earth has multiple direct impacts on the environment. The production of ore, quarry stone, or coal requires vast amounts of overburden material removal, most of which cannot be replaced in many cases, resulting in the disturbance of landscape, a decrease in air quality and soil productivity, erosion and sedimentation, disruption of flora and fauna, a decrease in the productivity of water and the micro climate change, accidents and fatal injuries, and changes in social-cultural order. To compensate for this disturbance, mine reclamation is carried out (Toprak, 2004).

Policy of regional autonomy in Indonesia since the early 2000s has brought the expansion of mining permits escalation so that the current number of mining licenses in all regions of Indonesia recorded at the Ministry of Energy and Mineral Resources has exceeded 10,000 licenses. East Kalimantan, a province that has great potential in the mining sector, particularly coal mining, currently has about 19.5 billion tons of coal reserves (Handbook of Energy and Economic Statistics of Indonesia, 2015). In 2016, There are 1404 mining licenses in East Kalimantan consist of 427 operation licenses and 977 exploration licenses. (Energy and Mineral Resources Agency of East kalimantan, 2016). Most of coal mining operations in East Kalimantan are using open pit method. In technical terms, the

stages of mining activities include land clearing, stripping of top soil, overburden removal and coal excavation. To be more specific, in land clearing activities, the plants will be dozed and top soil containing rich of nutrients will be dumped on a special area. Topsoil will be reused for reclamation and revegetation purposes. Moreover, the process continue with overburden (material underneath top soil) removal by using excavator with the aid of ripper or explosives depends on material's hardness. Furthermore, the overbuden material will be transported by using dumptruck to disposal area, or directly dumped to the backfill area. After those stages above, the coal that has been exposed will be cleaned first by using a small excavator and loaded by bigger excavator into the dumptruck then transported to the port.

Statistic from Energy and Mineral Resources Agency of East Kalimantan shows that there are 98.169,92 hectares of land disturbed by mining activities, whereas only around 38.320,50 hectares has been revegetated (about 39%). Furthermore, as the bigest coal producer in Indonesia (Table 1.1), East Kalimantan is a benchmark province in implementing good mining practice including good reclamation activity. Based on those fact, One of the things that can be done to reduce damage to the environment by the mining operation is tighten up the regulations related to mining. Therefore, analyzing and evaluating the existing regulation system including the local government regulation is one of the tools to ensure mine reclamation process will be properly implemented.

Table 1.1. Top Three Coal Producer Provinces in Indonesia (2016)

No	Provinces	Production
1	East Kalimantan	221,489,082 Metric Tons
2	South Kalimantan	143,081,558 Metric Tons
3	South Sumatera	31,093,315 Metric Tons

Source : Ministry of Energy and Mineral Resources, Directorate General of Mineral and Coal

Reclamation is defined as activities aimed at improving disturbed lands as a result of mining activities so it can be functioned as intended (Devi & Prayogo, 2013). This means that the management of post-mining land should be directed to the appropriate land use and spatial planning. In Reclamation aspect, the fundamental of mine reclamation in Indonesia is regulated under Act No. 4 of 2009 on Mineral and Coal Mining (Mining Law), replacing Act No. 11 of 1967 on Basic Provisions of Mining. Act No. 4 of 2009 is then lowered into government regulation No.78 of 2010 on Reclamation and Mine Clossure and Minister of Energy and Mineral Resources Regulation No.7 of 2014 on Reclamation and Mine Clossure Implementation in Mineral and Coal Mining Activities as the technical guidance. The success of revegetation in quantity and quality leads to forest development activities. Therefore, the orientation is based on the environment functions which are the source of the raw materials and environmental services function. Reclamation and mine closure is one of the mandatory aspects in Government Regulation Number 78 of 2010 on Reclamation and Mine Closure. These activities need to be planned since the beginning due to some considerations. Implementing reclamation in early stage, is a key factor in land use efficiency and good mining practices. It needs to be linear with the progress of mine sequence. Moreover, reclamation and mine

closure planning even need to be considered at the stage of feasibility study because they are part of the mining cycle which should be carried out from the beginning as an environmental protection to support sustainable development (Prasodjo, 2015). For example, if a mining company has 3 working sites, A1, A2, and A3, and A2 has been completely mined, then this location can be reclaimed as soon as possible, while they can still exploit on other sites. Therefore, reclamation is not always performed at the end of the mine cycle, otherwise it is part of the on-going stages of mine sequence.

From the expanation above, we realize that the mine land reclamation issues become important issues to address and develop in “natural resources” countries. Therefore, this research attempts to evaluate mine land reclamation regulation system in Indonesia in a comprehensive framework that has not been done before. To give more detail explaination, this research will also specifically adressed the East Kalimantan Local Regulation Number 8 of 2013 on Implementation of reclamation and mine clossure. How does the the policy affect the actual condition will be the main idea of this study, whether it has better output or otherwise since it has been enacted. Two indicators will be used to measure the output namely; mine land reclamation rate and mine land reclamaton bonds.

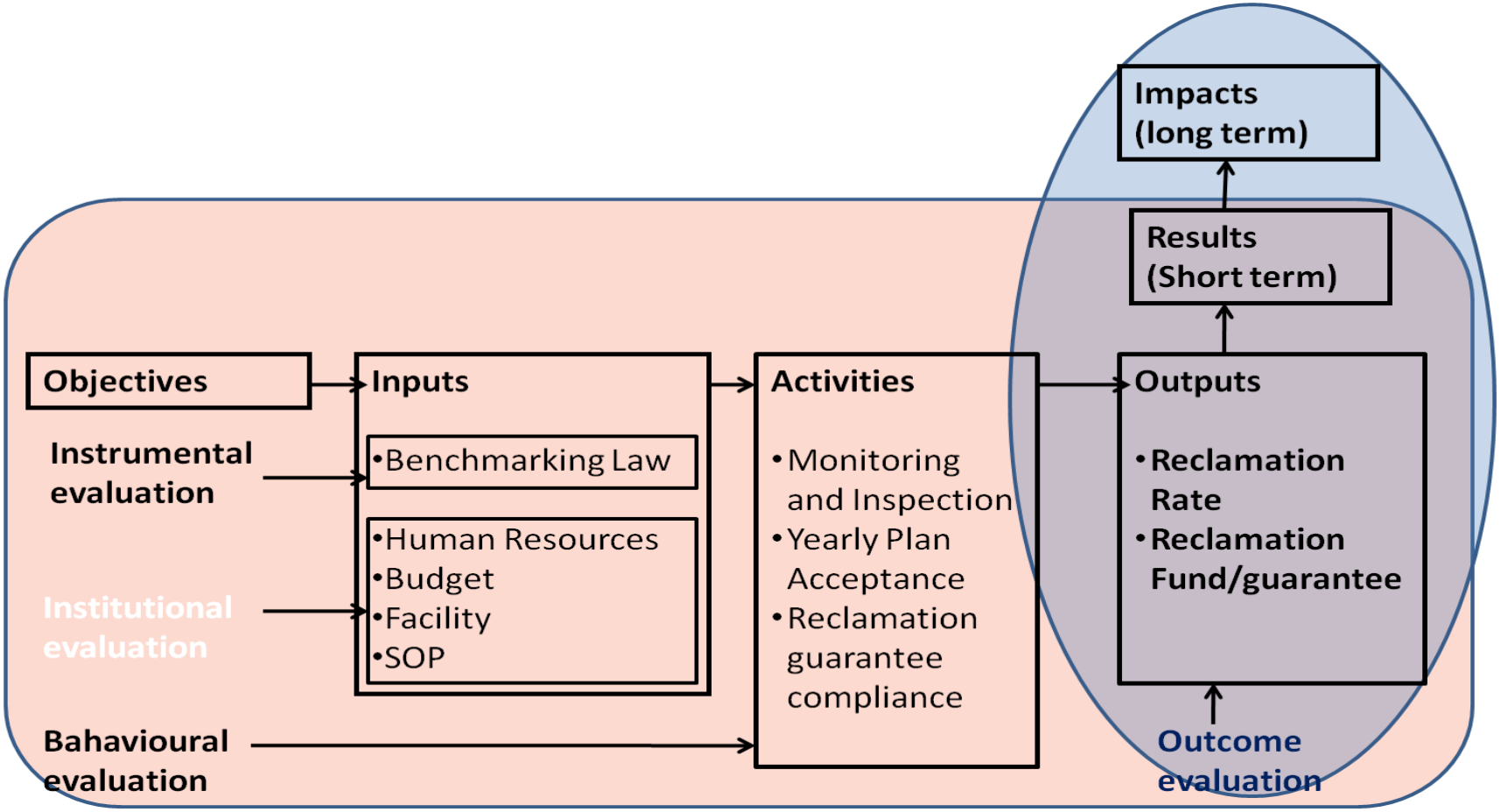

Figure 1.1 Research Framework (Modified from Environment and Climate Policy Evaluation; EEA, 2016)

1.2. Research Questions

Based on the research background, the research question is formulated as follows:

1. How was the East Kalimantan Local Regulation No.8 of 2013 viewed from stakeholders perspective, in terms of instrumental, institutional, and behavioural aspect ?
2. After Law No.8 was enacted in 2013, what was the impact on the reclamation rate, reclamation fund, and environmental cases?

1.3. Significance Of Research

The importance of this research in detail as follows:

1. Practically, For the Government, this research can be an input in developing policies and strategies to manage mine land reclamation for improving environmental quality; for the community and the mining industry, it can improve understanding of mine reclamation to encourage participation.
2. Theoritically, For academics and researchers, the results of this study are expected to provide the contribution for public administration science in natural resources field and encourage similar studies so as to enrich efforts in developing sustainable good mining practices.

1.4. Limitations of Research

The limitations of this research as follows:

1. Only focus on the quantity rather than assessing the successfull criteria of mine land reclamation from the perspective of quality indicators of plants and biodiversity.
2. Using single case study and descriptive analysis as methodology. Future research may use comparative study and quantitative analysis for advance research.

1.5. Study Site

East Kalimantan Province, one of the second largest province after Papua, has abundant natural resource potential where most of the potential has not been optimally utilized. Natural resources and their products are mostly exported abroad, making this province the main source of foreign exchange for the state, particularly from the Mining, Forestry, and other products. Administratively, the province is bordered with North Borneo in the northern side, Makassar Strait and Sulawesi Sea in the eastern side, South Kalimantan Province in the Southern side, and in the western side with Central Kalimantan Province and West Part of Sarawak East Malaysia.

East Kalimantan has a land area of 127,267.52 km2 and marine management area of 25,656 km2. It is located between 113º44 'East Longitude to 119º00' East Longitude and between 2º33 'North Latitude to 2º25' South Latitude. According to Cenral Bureau of Statistics, The population in 2013

reached 3,300,517 people consisting of male population 1,731,820 people (52.47 percent) and female population 1,568,697 people (47.53 percent).

The province has a wavy topography from the slope to steep ramps, with altitude ranging from 0-1500 meters above sea level with a slope of 0-60 percent. Lowland areas are generally found in areas along the river. While the hills and mountains have an average height of more than 1000 meters above sea level with a slope of 300 percent, there is the northwestern part directly adjacent to the territory of Malaysia (Bappeda Kaltim, 2017). Viewed from topography, 43.35 percent of the land area is included in a slope above 40 percent while 43.22 percent is located at an altitude of 100-1000 m above sea level, so that the utilization of land in East Kalimantan Province should pay attention to the characteristics of the land (Bappeda Kaltim, 2017).

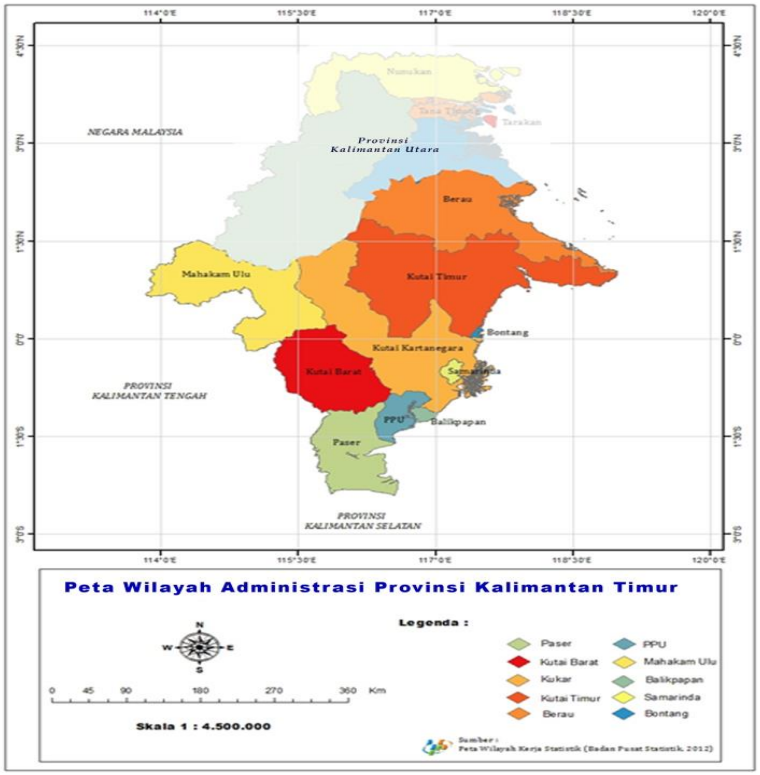

Figure 1.2 Administrative Map Of East Kalimantan

Source : Bappeda Kaltim, 2017

Moreover, there are 1404 mining permits (IUP) issued by the regional, provincial and district / city governments. In addition, there are also 33 mining permits issued by the central government through an Energy and Mineral Resources Ministry called the Working Work Agreement (PKP2B). With coal resources approximately 19.5 billion tons, and reserves of about 2.5 billion tons, East Kalimantan becomes one of the biggest sources of energy in Indonesia. The provided table below shows the number of mining licenses issued by East Kalimantan Government.

Table 1.2.Mining Licenses in East kalimantan

No	**Regency/Municipality**	**Number of Licenses**
1	Kutai Kartanegara (Kukar)	625
2	Kutai Barat	244
3	Paser	67
4	Berau	93
5	Kutai Timur	161
6	Samarinda	63
7	Penajam Paser Utara	151
	Total	**1404**

LITERATURE REVIEW

2.1. Prior Studies

There can be found several other studies in the literature that have assessed regulation of mine land reclamation. To give more detail explanation, according to Yonk, et.al. (2017), the Surface Mining Control and Reclamation Act of 1977's as a milestone in the enactment of mining reclamation regulations in the United States, had an important impact on environmental protection. While the need for energy supplies derived from extraction of minerals was high at the time, the United States government struggled to achieve a balanced level of economic movement and environmental protection. However, there are many conflicts of interest that occur after the issuance of this regulation, such as industry actors who do not allow the Office of Surface Mining Reclamation and Enforcement (OSMRE) to issue environmental policies, but the spirit of the rule is clear, to fully protect the environment with its consequences , and the government has full authorities to take the necessary action.

Furthermore, White, et.al. (2012) state that as developed countries, Australia and New Zealand are also inevitable in facing environmental problems caused by mining. In the journal, it is described how their legislation focuses on providing funds to rehabilitate abandoned mine sites. Particularly for Australia, the unenforceability of reclaiming ex-mining areas in the old regulatory era has had enormous consequences for providing substantial funds every year in purpose to maintain environmental standards especially water, while the government can not demand anything from mining actors as they have closed their mines before the new regulations take effect. On the contrary side, Cao (2007) makes a fairly firm

statement of the policy characteristics present in the developing countries. He said " developing countries are characterized by contradictory objectives, segmented and general legislation, by complicated and confused institutional structures with low effectiveness, and by poor compliance. By exploring mine reclamation policy in China, Cao can provide a portrait of governance in developing countries that have not yet well implemented and put forward the solution for developed countries to help developing countries in designing legal framework and enhance their institutional capacity building at all levels with the assistance of international financial institutions, as well as to jointly review the costs and benefits of mineral distribution.

Finally, Hu, Zhenqi, (2014) argue that, the study of mine land reclamation policy from new public management perspective in China, is a comprehensive research both in theoritical and practical level, for promoting the good model of mine land reclamation policy. In their paper, the mine land reclamation regulation system framework and elements were expounded in detail through preliminary analysis, i.e., regulatory rules (legal regulatory rules and technical regulatory rules), regulatory purposes (macro-view, middle-view, micro-view), regulatory subjects and objects (vertically dividing into five levels and horizontally ensuring well interdepartmental coordination), regulatory procedures (conception, plan, implementation, acceptance check), regulatory means (administrative approval, check and acceptance, information reporting and filing, fund supervision agreement, administrative penalty), etc. However, He concluded with the statement that China’s land reclamation regulation is still at its early stage, the theories relevant with regarding mine land reclamation system still need to be

improved and completed in order to provide stronger theoretical basis and technical support for the development of land reclamation regulation.

2.2. Environmental Policy Evaluation

Policy evaluation, only recently gaining popularity in the environmental field, is much older than many people think. As the governance of national states grew increasingly complex during the course of the 19th century, national parliaments found themselves barely able to carry out their task of checking the executive branch of government (Crabe, et.al., 2012). According to European Environmental Agency (EEA), there are many definitions of evaluation, some more relevant than others for environment and climate policy evaluation. The EEA frequently uses two of these definitions. The first definition stresses the real-world utility of evaluation, and the fact that ex post evaluation should aim to be relevant. Basically, this definition referred to the statement made by Vedung “evaluation is minimally defined as careful retrospective assessment of public-sector interventions, their organization, content, implementation and outputs or outcomes, which is intended to play a role in future practical situations” (Vedung, 2010).

The second definition of evaluation emphasises a set of evaluation criteria commonly used in evaluations and, like the first definition, accentuates the retrospective (ex post) character of evaluation. Evaluation is defined as an evidence-based judgement of the extent to which an intervention has been effective and efficient; relevant given the needs and its objectives; been coherent both internally and with other EU policy interventions; and achieved EU added-value (EEA, 2016)

2.3. Mine Land Reclamation

Reclamation is an integral part of mining activities aimed to restore the functions of the exploited land, carried out with a systematic plan, in purpose to achieve sustainable and environmentally friendly mining. To perform a good reclamation, proper planning is required and adapted to the spatial layout so that the implementation can achieve the desired target. Departing from that definition, reclamation activities are not only carried out at the operation stage, but also at the exploration stage. The success of revegetation in quantity and quality gives a perspective regarding the terminology of revegetation in mine land reclamation which is closer to the forest development activities. Thus, the orientation is based on the improvement of environmental function, both as the function of resources providers and the function of environmental services. Fundamental backgrounds stated on Government Regulation number 78 of 2010 on Reclamation and mine closure why it needs to be planned from the beginning, are:

- Immediate reclamation, is a key factor in land use efficiency, and good mining practices.
- The mine sequence needs to be parallel with reclamation progress and post-mining anticipation. Mine closure planning should even be considered from an early stage, spesifically in the feasibility study phase.

Significantly important as well as technical measurements, the involvement of stakeholders from the early stages of reclamation and mine closure activities is essential to accommodate their aspirations, with the result that the ex-mine sites may have benefits, both economics and environment for local communities and

local governments. Hence, the utilization of ex-mining sites must be performed simultaneously with the development plan of the region and the needs of the communities.

Furthermore, In order for optimizing reclamation activities, the government obligates reclamation bonds, a fund provided by a mining company as security deposit for reclamation, as a preventive tool to anticipate unexpected situations regarding the continuities of reclamation, like bankruptcy, or even irresponsible behaviour from mining company by neglecting the obligation to reclaime the mining area.

The amount of the Reclamation and Mine Closure Bonds is stated in the Annual Working Plan on Engineering and Environment. The amount the bonds is calculated, validated, and estimated able to cover the entire cost of reclamation and mine closure. However, depositing a guarantee does not mean eliminating the obligation of the companies to carry out reclamation and mine closure. The reclamation bond is prepared by the license holder based on the 5 Year Reclamation Plan approved by the licensor in accordance with its authority, and can be in a form of joint account or deposit at a government bank. The licensee may apply for the disbursement of the reclamation guarantee to the government after completing the reclamation activities. The Government will evaluate the implementation of the reclamation, and grant approval for the disbursement of reclamation bonds to be returned to the company in accordance with the evaluation results. Nevertheless, If the evaluation results indicate incompatibility with established criteria, the government may appoint a third party to carry out reclamation activities in part or whole by using reclamation guarantee fund. In the case of reclamation bonds can not cover the whole cost expended by such third

party, then the company remains responsible for the settlement or fulfillment of its cost.

Figure 2.1 Reclamation Stages

Source : Author, from site visit

2.4. Local Regulation No.8 of 2013

2.4.1. Benchmarking Theories

Local Regulation No.8 of 2013 is an initiative policy proposed by local Parliament as a result from many environmental cases including fatalities in mine sites. The Local Regulation of East Kalimantan No.8 of 2013 on Reclamation and Mine Closure is considered urgent and arranged only for three months based on some theories and regulations. The theories considered relevant in relation to the problem of reclamation and post-mining and become the benchmarking theories of the East Kalimantan Local

Regulation are Permissions Theory, sustainable development theory, and law enforcement theory (LR Academic Transcript, 2013).

a. Permissions Theory

The relevance of the licensing theory to the problem of reclamation is that the reclamation plan is essentially a permit institution, it is an integral part of the mining permit. When someone applying for a mining permit (IUP Exploration and Production Exploitation IUP), it must also submit a reclamation and post-mining plan at the same time. Here it should be understood that the application of IUP will not be processed if it is not accompanied by document of reclamation and post-mining plan. And it is precisely on the document of the reclamation and post-mining plan that consideration of licensing is based. According to Spelled and Berge. 1993, p.2, permit is an agreement of a ruler based on law or government regulation to in certain circumstances deviate from the provisions of the prohibition of legislation. This involves favor for an action which in the public interest requires special scrutiny of it. Permission is used by the authorities as an instrument to influence (relation with) citizens to follow the recommended way to achieve their concrete objectives. The function of permission as a juridical means to drive the behavior of the citizens.

By granting permission, the ruler permits the requested person to perform the requested acts, but shall be done in the manner prescribed by the authorities. In the permit decisions given, usually listed limits to the rights and obligations of the license holder. Accordingly, the licensees are legally bound by the provisions of the permit decisions. If the provision in

the license is not complied with, then the applicant or the permit holder may be given sanctions in accordance with existing regulations. Typically, such sanctions are expressly implied in a given permit, for example sanctions in the IMB, may be warnings, temporary suspension orders, sealing of certain tools, and revocation of permits. There are several functions of permit, the main one is the control function (sturen). In this transmission, through the instrument of permission all activities or businesses are controlled and directed in such a way that in accordance with certain procedures and criteria set forth in the legislation.

The next permission function is a legal protection function. On the one hand, a permit is a form of preventive action against the possibility of a problem that can harm the interests of individuals, groups of people, or the public interest. But on the other hand, the permit provides protection for the activity or business that the permit requested. With the permission, the activities or business licensed are legal or legal, and are entitled to obtain legal protection from the government against the possibility of interference or threat from any party and anyone, including from the government itself. Related to mining permits, in theory are grouped as a type of "Concession", namely a permit whose object is related to the right of state sovereignty. In the Constitution of the State of the Republic of Indonesia determines that the mining resources are controlled by the state and earmarked for the greatest prosperity of the people (Article 33). Therefore, in accordance with the "sturen" function, the granting of mining permits must be followed by strict supervision to ensure the achievement of licensing objectives. This supervision includes reclamation and post-mining activities that are an integral part of the mining permit.

b. Sustainable Development Theory

The concept of environmentally sustainable development is originally a program that integrates development activities with environmental concepts and interests. Each development activity shall consider the aspect of sustainable and balanced environmental capability to support sustainable development. The concept was first presented by the World Commission on Environment and Development (WCED) in a Our Common Future with the statement: "Development that meets the present without compromising the ability of the future generation to meet their own Needs. These concepts then developed and used as references by various studies and policies in various countries.

According Koesnadi (1990, p. 127) environmentally development perspective is development with regard to environmental interests, or without damaging the environment. Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This means that every development activity, including mining activities, must take into account all possible environmental impacts, both in the short and long term.

The reclamation and post-mining plan is one of the mining instruments in order to maintain and protect environmental functions as well as to control the occurrence of impacts. In the UN documents, especially the World Summit 2005 results document, it is mentioned that sustainable development not only concentrates on environmental issues, but broader than that includes three policy areas: economic development, social

development and environmental protection. These three dimensions are interrelated and are the driving forces for sustainable development.

In Law No. 32 of 2009 on Environmental Protection and Management, Article 1 point 3 states that "Sustainable development is a conscious and planned effort that combines environmental, social and economic aspects into a development strategy to ensure the integrity of the environment and Safety, capability, welfare, and quality of life of present and future generations ". Law No. 32 of 2009 no longer mentions the phrase "environmentally friendly", it can be interpreted that the definition of "environmentally friendly" already include in the meaning of "sustainable". Secondly, Law No. 32 of 2009 has integrates environmental, economic and social development aspects, as the framework of sustainable development. In terms of mining, reclamation and post-mining activities are actually instruments to realize the concept of sustainable mining, as reflected in the principles of reclamation and post-mining.

c. Law Enforcement Theory

A legal provision that is not (enforceable) in reality (law in action), has no meaning whatsoever. One of the objectives of law is to achieve peace by realizing justice, order, and legal certainty in society. Legal certainty requires the formulation of general rules of law, which means that the rules must be enforced and firmly implemented. According to Koesnadi Hardjasoemantri, law enforcement is not always necessarily done through the Court, but can be implemented through various channels with various sanctions, such as administrative sanctions, civil sanctions and criminal

sanctions (Koesnadi, 1992, p.25). Law enforcement is essential in the process of working the law in people's lives. Law is a powerful instrument for realizing order in the life of society. The legal essence is necessary to prevent the occurrence of dangers that can disturb the life of the community, so that every member of the community feels secure and secure for obtaining legal protection (Wahyu Effandy, 1994, p 4).

Furthermore, Soerjono (1993, p. 5) stated that there are also several factors that affect the effectiveness of law enforcement, namely:

- The legal factor itself.
- Law enforcement factors, i.e the parties that make up and apply the law.
- Factors of facilities and infrastructure or facilities that support law enforcement.
- The community factor, ie the environment in which the law applies
- Cultural factors, as a result of work, inventiveness, and sense that are based on human initiative in the association of life.

In relation to reclamation and post-mining, law enforcement is intended to ensure that every reclamation and post-mining plan of a mining activity can be implemented consistently in accordance with a plan approved by the authorities. Referring to the theory of law enforcement effectiveness proposed by Soerjono Soekanto, so that every reclamation and post-mining plan can be implemented as well as possible, at least must be fulfilled by 2 factors of influence; 1) A good, clear, and applicable law on reclamation

and post mining, including provisions on administrative sanctions and / or criminal sanctions; 2) clear and decisive institutional factors in enforcing legislation on reclamation and post-mining.

2.4.2. Substantial Contents

In East Kalimantan regulation number 8 of 2013, there are four important substances contained in it, which are :

- To stipulate more clearly about the obligations and responsibilities of mining license holders in relation to the reclamation and post-mining activities;
- The extent of its scope is intended to be able to bind to all mine closure and reclamation activities throughout East Kalimantan;
- Urgency of establishing mining supervision commision whose domain is specific to the implementation of reclamation and mine closure activities within East Kalimantan; and
- There is a need for clear administrative sanctions and / or criminal sanctions against violations of the reclamation and mine closure provisions, in order to provide deterrent effect.

a. The Principles of Reclamation and Mine Closure

The reclamation and post-mining operations regulated in this regional regulation constitute an ecological policy of the Government of East Kalimantan as an effort to provide protection to the interests and functions

of the environment and social functions throughout the region. Related to that, in this regulation, IUP Exploration holders, Exploration IPR, and Exploration IUPK are required to conduct reclamation activities. While for holders of Production IUP, Production IPR, and Production IUPK besides required to do reclamation activities and also must perform post-mining activities.

In the implementation of reclamation and post-mining activities as far as possible based on the principles of reclamation and pascatambang already known in various literatures, as well as those specified in PP. 78 of 2010 on Reclamation and Post-Mining, namely: principles of environmental protection and management; Principles of occupational safety and health; And the principles of mineral and coal conservation.

b. Reclamation

- **Planning Stage**

Basically, the reclamation and post-mining are a unity with mining activity, so the reclamation plan should be prepared together with the preparation of the exploration activities plan. Therefore, when applying for IUP Exploration permit, Exploration IPR, and Exploration IUPK, the applicant must also submit document of reclamation activity plan and other supporting documents. Similarly, when a mine company submits applications for Production IUP, Production Production IPR, and Production IUPK, it is also required at that time to submit documents of reclamation and post-mining activity plan and other supporting documents. By incorporating these documents, the evaluation and

consideration for granting the mining permit application also depends on the fiscal and recapitulation of the reclamation plan. Other supporting documents include environmental permits, AMDAL or UKL-UPL, financing of the reclamation, permit from the landowner or from the competent authority if it is a forest area, and other documents. The details of the reclamation plan document shall at least include: the form of reclamation, the details of the reclamation, the reclamation procedure, and the reclamation techniques to be applied, including on the financing scheme of reclamation guarantee. The reclamation plan is made within 5 (five) years which contains detailed reclamation plan every year, except for the mine life under 5 (five) years, the reclamation plan is prepared according to the age of the mine.

- **Implementation Phase**

Holders of Operation IUP, Operation IPR, and Operation IUPK shall perform reclamation based on reclamation plan approved by authorized official. The obligation to undertake reclamation shall be done no later than 30 (thirty) days since the unused land has been utilized. The 30-day deadline requirement is intended to keep the former mining area from being protracted open which could pose an environmental risk.

- **The successfull rate of reclamation**

There is a standard for the success of reclamation that can be used as the basis for assessment and evaluation by the supervisory team. The success of reclamation is achieved through the stages of activities,

namely: the stages of land management, the stage of revegetation, and the stage of environmental monitoring. At the stage of land management, activities undertaken must meet the following minimum criteria:

- Top soil management, every company must provide top soil bank in order to re-use it in revegetation step.
- Over-burden management, at least covering 80% of the back filling area;
- Slope stability, at least meet the recommendations of geotechnical studies;
- prevention of erosion and sedimentation, at least in the form of cover crop planting in the revegetation area; and
- The final void plan has a maximum area of 10% of the disturbed area.

At the stage of Revegetation, the activities should have the following minimum criteria:

- Top soil spreading; at least in the form of return of all previously stored soil;
- Soil quality improvement; must be done by giving organic fertilizers;
- At least 625 plants / hectare
- Plants care and enrichment; shall perform nursery, weeding, pest eradication, fertilization, including the planting of local crops (until the end of mine/handover to government).

For monitoring activities, the minimum requirements that must be met are as follows:

- The fulfillment of land and air quality based on the standards and legislation;
- Increasing the diversity of plant and animal species in the reclamation area; and
- Minimum of 80% planted plants grow well

➢ **Reporting Stage**

Holders of IUP who have conducted reclamation, within 30 days of the reclamation activity are declared complete, shall submit report on the implementation of the reclamation to the responsible agency with a copy to the Mining Supervisory Commission. The report is evaluated by the responsible agency and the Mining Supervisory Commission to determine the success rate of the reclamation.

METHODOLOGY

3.1. Type of Research

This research is a qualitative study using environmental policy evaluation framework developed by European Environmental Agency (EEA) through four levels of evaluation; instrumental, institutional, behavioural, and outcome referring to International Union for Conservation of Nature (IUCN) guidance as follows :

- Instrumental: Explain how the government uses legal instruments such as regulations,laws, judicial report and other formal instruments to be able to run and harmonize with non-government instruments, such as industry codes, or market standards that require consideration for achieving the welfare of the people.
- Institutional: Explain how the executive can apply a legal product into a concrete form that is translated in terms of organizational structure, accountability, strategy, program, and budget. Implementation regulations by non-governmental persons and organizations such as NGOs formed by the existence of a legal product are also relevant to the performance of legal instruments.
- Behavioural: Explain how the process of the behavior of people and organizations are created in a society, so that it can describe the ideal conditions if the rules / principles are applied effectively. Actors involved in this evaluation are usually government officials, administrative bodies; industry or citizen organization.

- Outcome: Explain how the objectives of a legal product or legal principle can be consistent with the results of the application of biophysical and / or social principles.

Furthermore, in order to obtain a clear perspective on the actual condition of mine land reclamation, case study approach proposed by Yin (2013) is used. The case study is an approach to study, explain, or interpret a case in a natural context without any external intervention conducted by researchers through direct observation in the field, studying the policy documents and conduct semi structured interviews. This research uses single case study approach with descriptive analysis. Descriptive analysis interprets data regarding to the facts, variables, and the phenomenons, and presenting the actual circumstances. Items that are observed could be the attitude, outlook and assessment of topics or phenomenons that occur at this time, the relationship between variables (correlative), contradiction of two or more conditions (comparative), influence on a condition, or the differences between the facts (Asmara, 2009). However, this research is focusing only to the applied policy in East Kalimantan provincial government without any comparation to the other local government in purpose to examine the implementation of the policy, and then look for feedback which is expected to improve the policy.

3.2. Sources and Type of Data

In a qualitative study, the phenomenon will be understood well if there is a good interaction with the subject through in-depth interviews and observations on the background where the phenomenon is happening. In addition, documentation is required because the written materials on the subject are often used as a

supplement to the required data. In several literatures, there are various methods of data collection in qualitative research, such as: interview, observation, documentation, field notes, FGD (Focus Group Discussion) and trianggulation. Informants in this qualitative research is not focused on the number that represents the subject, but the characteristics of the research subjects. This means that the informants were selected regarding their knowledge on the problems studied. The primary and secondary data in this research can be detaily explained as follows:

3.2.1. Primary Data

Aside from collecting data by observation, data in the social sciences can be obtained by conducting interviews. Informants in this study can be divided into two, the initial informant and key informants. Initial informants are chosen because he/she knows or can appoint people who are considered to give more information about the issues that have been studied. Key informants are parties or persons who are considered to have information or knowledge on issues that have been studied. This study conducted semi structured interviews to 19 interviewees or informants to obtain in-depth information on matters related to the problems examined. Interviews are conducted with informants selected intentionally (purposive) and have competence in the area concerned. Informants in this study include:

- 3 Representatives of Energy and Mineral Resources Agency of East Kalimantan Province;
- 2 Representatives of Mine Inspector of East Kalimantan Province;

- 3 Representatives of mining company
- 10 Representatives of local community;
- 1 member of reclamation and mine clossure commision.

To be more specific, one of the initial informants in this study was Head of Energy and Mineral Resources Agency (I2). He has served as the highest authority in the agency since 2010. In other words, although technically there may still be someone who has more knowledge than him, he is very familiar with the historical process of this policy,. In short, he can give a general picture and political background behind the publication of this regulation, and help provide direction to who interviews can be done to get more sharp information.

The appointment of a person to be a key informant in this study is also based on a recommendation of (I2). All of these key informants were technically involved in the process of formulating this regional policy, from the initial identification phase, the making of academic transcript, the discussion, to the completion of the regulation. As all key informants come from the government, the recommendations of the intial informant I2 are helpful for the smoothness of the interview. Like I1 who is a member of the reclamation and mine closure commission, he was previously a mine inspector in the city of Samarinda who was recruited to become a commission member because of his competence. With more than 10 years of experience in mining, the information provided is quite representative and has a fairly clear theoretical and historical basis. As well as I1, I4, who is the head of the technical and mining section of the Energy and Mineral

Resources Agency, and I5 which is a mine inspector, also comes from a highly relevant background as a key informant judged by his involvement in overseeing mining in general, and the process of escorting this regulation in particular.

Table 3.1. Example of interview resume

	QUESTIONS LIST		I1	I2	I3
			(COM)	(EMA)	(EMA)
Instrumental	• what are the rules referenced in Local Regulation number 08 of 2013?Is there any international standard adopted?/Do you know the East Kalimantan Local Regulation No.8 of 2013?	A1	Only National Regulation, e.g. act, Government Regulation, Ministrial Regulation. No International Standard	Only National Regulation, e.g. act, Government Regulation, Ministrial Regulation. No International Standard	Only National Regulation, e.g. act, Government Regulation, Ministrial Regulation. No International Standard, also mining expert from University in Bogor
	• What are the specific objectives of this regulation?	A2	Limiting the mine void, increasing reclamation rate, increasing compliancein adm and practical	Provide more spesific standards for reclamation, and establish the commision	Take over the authority from regency/municipality to province in term of reclamation supervision
	• Is there any time range for the objectives?why, and how to measure it?	A3	No, time range. Mining activity is dynamic. Control in annual report	No time range	No, time range. Mining activity is dynamic. Control in annual report
	• What are the fundamental issues set out in the regulation that enable them to improve the quality of reclamation and mine clossure operations?	A4	maksimum 10% of void at the end of mine/match the EIA, minimum 80% of backfilling	maksimum 10% of void at the end of mine/match the EIA, minimum 80% of backfilling, establish the commision	maksimum 10% of void at the end of mine/match the EIA, minimum 80% of backfilling
	• Does the regulation clearly describe who should be involved in reclamation and mine clossure activities and their roles and responsibilities? If so, who is involved?	A5	Only mention spesific about commision, other bodies is mentioned in national regulation	Only mention spesific about commision, other bodies is mentioned in national regulation	Only mention spesific about commision, other bodies is mentioned in national regulation
	• Are there any restrictions mandated in this regulation?	A6	No restriction is clearly mentioned, only mandatory actions	Restriction to disobey reclamation	No restriction is clearly mentioned, only mandatory actions

3.2.2. Secondary Data

Secondary data obtained in this study are gained through the study of literature, by reviewing the literature related to mine land reclamation. The secondary data that are used in this research, include :

a. Regulation
   - Act No. 4 of 2009 on Mineral and Coal Mining (Mining Law)
   - Government Regulation No.78 of 2010 on Reclamation and Mine Clossure
   - Minister of Energy and Mineral Resources Regulation No.7 of 2014 on Reclamation and Mine Clossure Implementation in Mineral and Coal Mining Activities as the technical guidance.
   - Local Regulation Number 8 of 2013 on Implementation of reclamation and mine clossure
   - Governor Regulation No. 53 of 2015 on the Reclamation and Post mining Supervisory Commission in East Kalimantan
   - Land disturbance and reclamation rates;

b. Reclamation and Mine Clossure Fund;

c. Mine land reclamation literatures.

3.3. Data Collection Method

It is important to plan how to efficiently obtain evidence at each of the four levels. Carefully scoping the issues and finding efficient methods and instruments for evidence-gathering is an integral part of the evaluation. Those who have used the framework report that spending time in carefully thinking through the most efficient methods for gathering and analysing the evidence is a wise investment . Data collection methods in this research will be carried out through the means and the following stages:

- Documentation : Searching the relevant literature, including academic and professional publications, and reports from stakeholder groups. This is a basic step that should be part of any investigation of the effectiveness of law or policy. Use of different types of secondary evidence, including scientific reports, can improve evaluations. To do this well requires time, and may require specialised expertise to interpret technical literature.
- Interviewing knowledgeable informants. Experienced people are important 'data pockets', who may direct the investigation towards additional sources as well as providing their own evidence. Tapping into data pockets can provide useful insights at very low cost. Conducting surveys, discussion or focus groups, and other social research investigations. These approaches can be useful, but may require specialist skills and time.
- Observation of relevant social or environmental phenomena related to mine land reclamation activity. Yin, 2013 argue that, Because a case study should take place in the natural setting of the "case", the researcher is creating the opportunity for direct observations. Assuming that the phenomena of interest have not been purely historical, some relevant behaviours or environmental conditions will be available for observation. Such observation serve as yet another source of evidence in a case study.

3.4. Validity Method

Validity method of this research is adopted from “case study research, design and methods by Yin (2013). By using triangulation of data resources (data triangulation), the potential problems of validity can be addressed clearly because the multiple sources of evidence essentially provide multiple measures of the same phenomenon. As explained above, the data in this research will be obtained from documentation, interview, and observations which will be analyzed for proposing conclusion and recomendation. To be more spesific, this research will explore the impact of local regulation number 8 of 2013 on Reclamation and Mine Closure by comparing reclamation rate before 2013 and after 2013 as an indicator. Furthermore, for clarifying the result, interview will be conducted to all stakeholders consist of government, private, and also comunities around the mine site. Finally, observation on the mine site will be performed in order to get direct perspectives on how mining companies manage their reclamation stages starting from backfilling activity, top soil management, fast growing plantation, local plant insertion, and preserve the reclamation area.

3.5. Data Analysis

The conceptual framework has been built to evaluate mine land reclamation policy through two steps, which are :

- Evaluation step : Evaluate the policy through primary specific question in four levels of evaluation (Figured in conceptual framework)

- Improving step : develop possible future improvement to the policy through three primary aspects; translating broad principles into legal obligations, fit with socio-economic and governance context, and resources and implementation feasibility.

3.5.1. Analysis at Instrumental Level

This step may involve some of the same legal documents that were used to identify the legal principle, leading to some circularity in the analysis. In other cases the environmental law principles will be drawn from one type of document (e.g. an international convention) and the formal adoption will be found in another class of document (e.g. laws within a jurisdiction) (Borges, et.al., 2016). In conclusion, this step will compare the existing policy in East Kalimantan to the environmental or social regulation, administrative laws, court judgements, and other legal instruments.

3.5.2. Analysis at Institutional Level

Evidence to evaluate institutional implementation by government agencies will typically consist of evidence of bureaucratic arrangements such as Departments or Agencies, Courts or Ministers being made accountable for implementation, or of budgets and strategies to implement these laws. Department reports, budgets and interviews are likely to provide this information. Freedom of information rules can facilitate this evidence gathering (Borges, et.al., 2016). This research will focus on organisational

structures, accountabilities, strategies, programs and budgets of Energy and Mineral Resources Agency of East Kalimantan.

3.5.3. Analysis at Behavioural Level

Evaluating behavioural change is likely to involve evidence from observations, interviews and surveys about the degree to which legal rules and institutional arrangements are being faithfully implemented. What evidence is needed depends upon the evaluators' decisions about what behaviours of which actors are important for effective implementation (Borges, et.al., 2016). This research will mainly explore two subjects of analysis in behavioural aspect, which are mining company as the main actor that plan and execute reclamation process, and community around mine site as affected individuals that has been exposed directly to the mining activities.

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3.5.4. Analysis at Outcome Level

Evaluation of social, ecological or economic performance should be based on objective social and biophysical evidence of the outcomes being achieved compared with the indicators, to the extent that this is possible (Borges, et.al., 2016). This research will focus on two indicators, reclamation rate, and reclamation bond.The reclamation rate will be analyzed using sattelite imagery/aerial photograph combined with quarterly report by mining companies.

RESULT AND DISCUSSION

4.1. Result

The Provincial Regulation of East Kalimantan No. 8 of 2013 on Reclamation and Mine Closure is established in response to the concerns from environmentalist, environmental NGO, local parliament, and communities to what they assume as “environment killer” namely mining. A potential failed of coal mining companies to carry out reclamation, poor licensing practices, unoptimal supervision, including insufficient and clear provisions for implementation were only some reasons to be raised as background to push the government for taking advance steps. This regulation is an initiative of the East Kalimantan Provincial parliament and attracts quite significant attention from mining actors and government at that time. The involvement of civil society, NGOs (local, national, and international), experts and practitioners from various universities contribute in the preparation.

The succesfull criteria for reclamation and the urgent need for independent supervisory institution are the main substance in the formulation of the Regulation. In addition, the obligation of submitting reclamation plan and placement of reclamation bond simultaneously with the application of mining license is a fundamental substance in this regulation as part of preventive principle in reclamation and mine closure implementation. Although it was finally passed into Local Regulation No. 8 of 2013, but in fact, the East Kalimantan provincial government requires 2 years for making the Governor Regulation related to Reclamation and mine closure Supervisory Commission as stipulated in Article 20 of the Local Regulation Number 8 of 2013, with the issuance of

Governor Regulation No. 53 of 2015. The Governor of East Kalimantan established this Commission On May 16, 2016 based on the Governor's Decree Number 540 / K.302 / 2016 on the Appointment of the Reclamation and mine closure Supervisory Commission. Based on the Decree, The Commission consists of 7 (seven) Commissioners. There are 4 people who go through the selection process in accordance with expertise and scientific capacity. While 3 people are the assignment of agencies in East Kalimantan Province Which covers the areas of the forestry, mining, and environment.

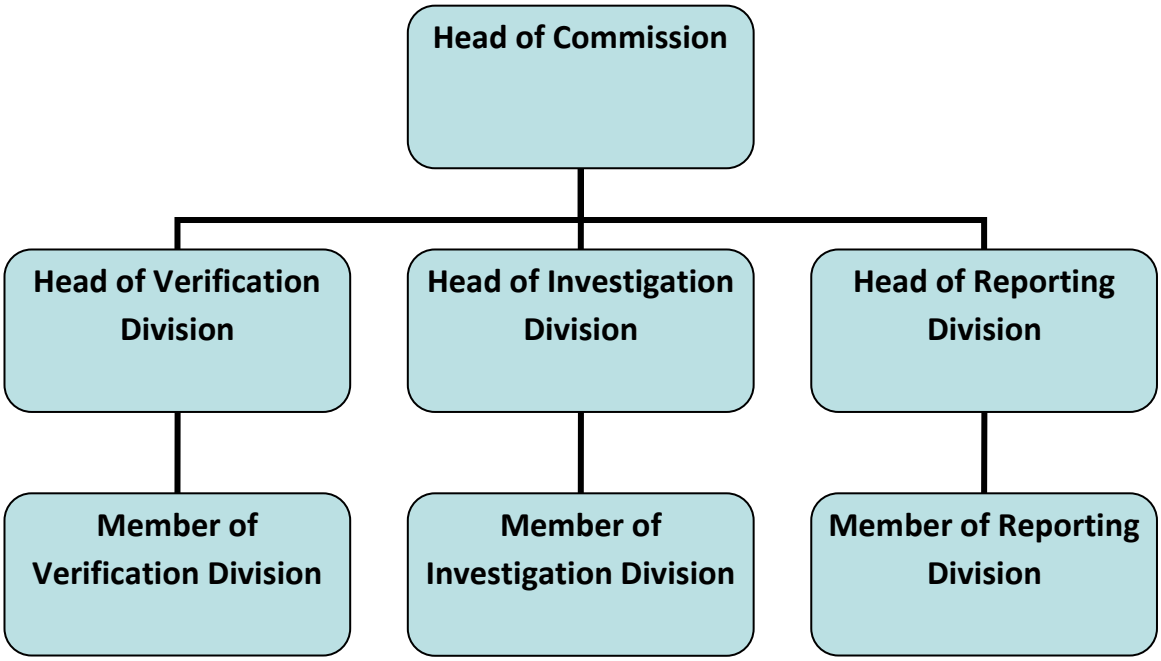

Figure 4.1. Reclamation and Mine Closure Supervisory commission's Structure

For addressing the effectivenes of this local policy, this study is using two main indicators, reclamation rate and reclamation bond. Basically, the reclamation rate is the ratio between the area of land disturbed by mining activity and the reclaimed area. Meanwhile, the reclamation bond is the amount of money deposited by the mining company to the Government Bank, as a

guarantee if the company abandon its responsibility in reclamation, then the funds can be used by the government to appoint a third party. This reclamation bond can be disbursed annually by the company after review of its compliance with the reclamation plan document by the mining inspector.

By taking and processing the data from Energy and Mineral Resources Agency of East Kalimantan, the comparison graph “before and after” the Local Regulation No.8 enacted can be shown as below

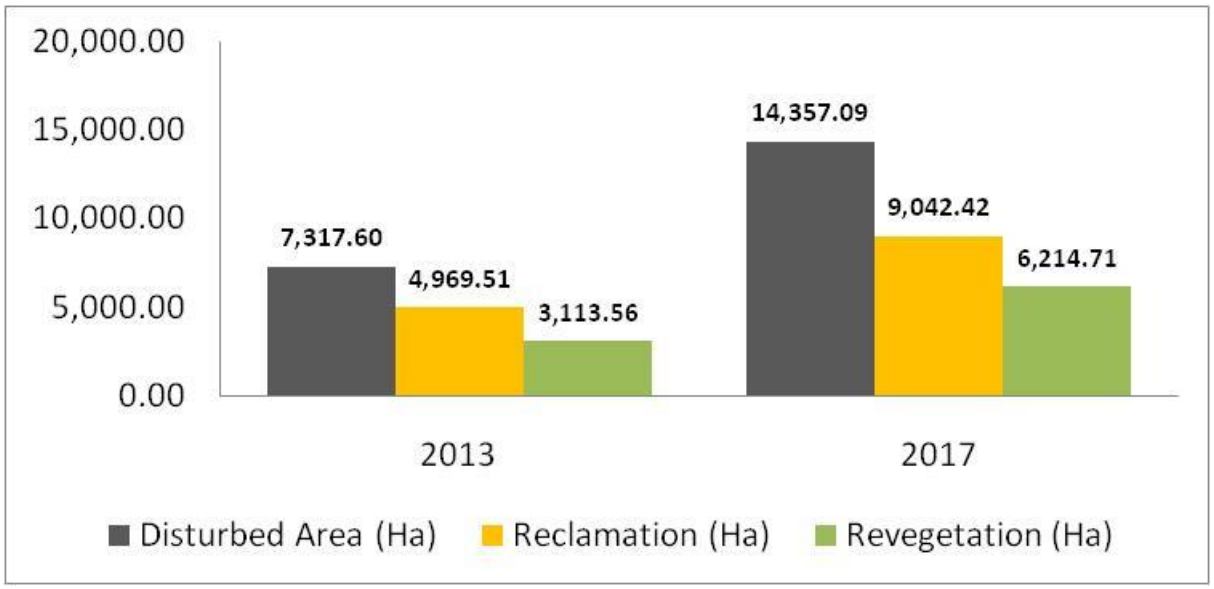

Figure 4.2. Disturbed area, reclamation, and revegetation before 2013 and after 2017

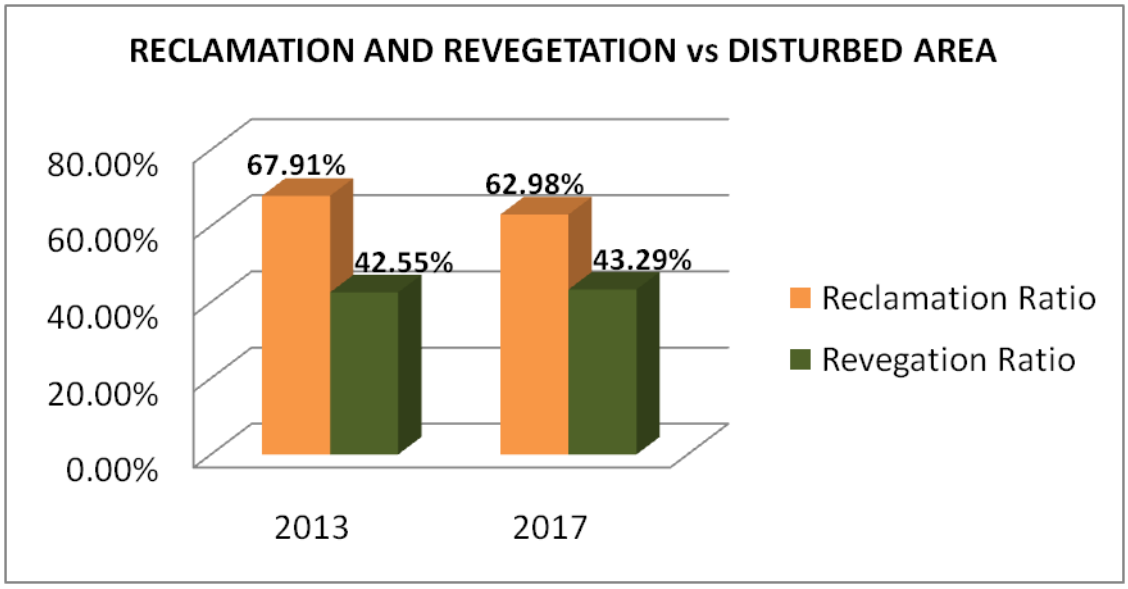

Figure 4 .3. Reclamation rate and revegetation rate before 2013 and after 2013

To give more detail explanation, reclamation ratio as a proportion of the total disturbed area declined from 68% (2013) to 63% (2017). This means that mining activities that open new areas increased while the reclamation activities undertaken by the company are reduced. As shown in Figure 4.2, disturbed area growth double in size, although reclamation also increased but the increase was not as great as that in disturbed areas. Meanwhile, the increase in revegetation ratio to disturbed land that is only 1 percent is not significant enough to meet the objectives of the regional regulation. Many justifications can be given to this data, but the fact that this regulation is being issued to improve environmental protection, and increase the reclamation ratio up to 80 percent, has not shown the consistency of the targeted outcomes. Large production needs are always raised by the private sector that they need to expand their work area, but the government should remain consistent that the main priority is the environment and limit the production capacity that will automatically minimize the newly opened areas while continuing to encourage reclamation. Another fact that nearly 80 percent of the coal produced is exported to other countries, the government

must be firm that the price to be paid in the form of environmental damage from coal extraction is too expensive and it is time to improve the environment and create added value in the fulfillment of domestic needs.

The graphics above give us an idea of how the local regulation on reclamation and mine closure is less effective after approximately 4 years of enactment. The reclamation rate which based on the regulation is targeted at least 80 percent of the disturbed land area, in fact, decreased by about 1 percent, although revegetation rate on the contrary increased by almost equal percentage. Indeed, there are many justifications or factors that can make people argue how the reclamation process is an integral part of the mine sequence, so it is easy for people to deny that the unfinished mining process at a site has caused the reclamation process to be delayed. However, is not this regulation made because environmental damage is considered to have exceeded the carrying capacity of the environment?

There are some fundamental ideas that can be used as a reference by the government if they are serious in implementing this regulation. One of the most effective is using technical and environmental plan annual reports as a powerful law enforcement instrument. The legal basis is clear, the company can not perform its activities if the annual report has not been approved by the government. This is the weakness on the side of the government that stands out today. The government does not have the courage to put the pressure on the company to reclaim immediately when the progress of the mine has reached the final elevation. However, 80 percent of the reclamation rate in the regulation has caused much debate, especially for mining actors, since it is considered not based on a clear scientific basis. For them, price fluctuations on certain coal

quality make they sometimes have to move from one pit to another in their concession area, and beyond what they plan for that year. They plan to re-mine the first area when prices are starting to increase, and surely this will leave the open area and lower the reclamation rate. In addition, they also argue that the actual percentage of reclamation can be seen near the mine closure time, since all facilities have been dismantled and the disposal material has been backfilled to the mine void.

But still, from the side of the government should have the view that the regulation exist to be implemented. In fact, events in the past should be a lesson in which governments give too much concession to mining companies in relation to reclamation, in the end many of them run away and leave huge voids even leading to the death of people swimming in the pit. Sadly, there is nothing the government can do because most of them do not deposit reclamation bond.

There is an interesting fact when it comes to reclamation bonds. As a second indicator to assess the effectiveness of this regional regulation, apparently, from a data compilation of 215 mining companies in East Kalimantan, although there was an increase of disturbed land by almost 100 percent from before and after this regulation enacted, the increase in the number of reclamation bonds was only 20 percent. In fact, the amount of reclamation bond is highly dependent on the disturbed area. This could be the beginning of the assumption that there is a possibility that not all companies have set up reclamation bonds as required.

However, this must be verified by literature studies and in-depth document analysis. Issues concerning the negligence of the company in depositing reclamation bond to the Government Bank, in fact has been raised several times

in the local media. As news on the " Tribun Kaltim " newspaper on 7 August 2017 stating that the transfer of authority in mining sector from Regency / City to Province, makes Energy and Mineral Resources Agency must re-arrange the licenses. In addition to revocation for the Non Clean and Clear (CnC) mine, billing on outstanding reclamation bonds will also be made. From the data compilation, according to the Energy and Mineral Resources Agency, there are 60 companies that have not deposited their reclamation bonds. Warning letter has been given to the companies up to three times. Letter of Warning 1 down on January 17, then Letter of Warning 2 on February 17, and Letter of Warning 3 on March 17, 2017. Moreover, the Energy and Mineral Resources Department also issued a follow-up letter regarding warning letter 3 on March 29 to all companies. Furthermore, there are some companies that have not provided their reclamation report. The absence of such reclamation report, made the Energy and Mineral Resources Agency has not been able to determine the amount of arrears to be paid by the companies.

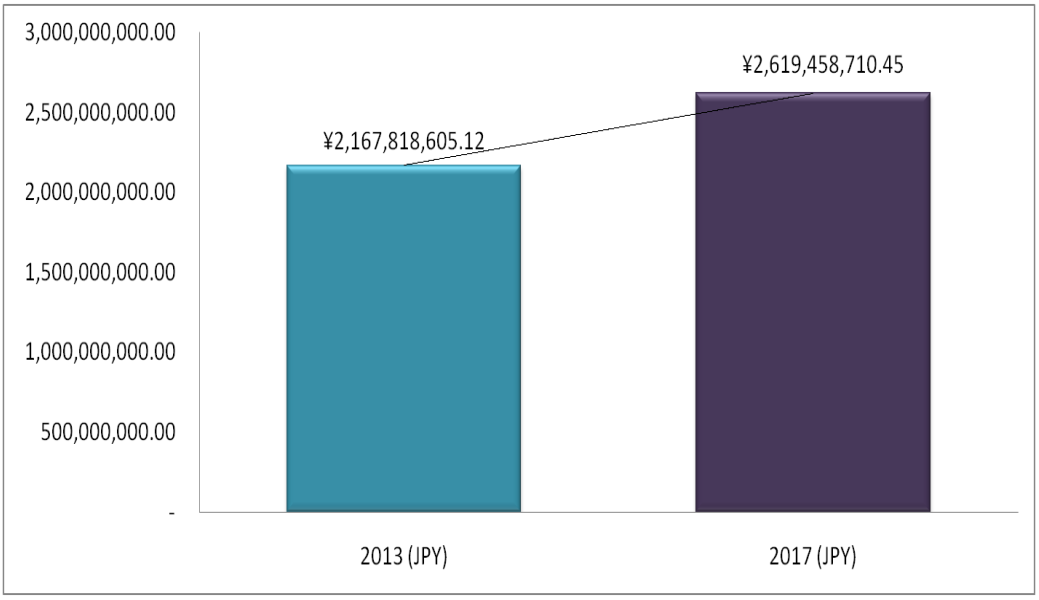

Figure 4.4. Reclamation Bonds before 2013 and after 2013

The irregularity that occurs in the management of reclamation is indeed a picture of the quality of a government, but that does not mean that nothing is done to overcome it. The transfer of authority from districts to provinces since 2013 has made the provincial government's problems become worse. The transfer of authority means unraveling a tangled thread that comes from a different background of political interests. So far, the provincial government has started to arrange reclamation bonds by stopping all mining activities that do not have reclamation bonds or have not deposited reclamation bonds. This is quite effective considering that companies with an interest in mining activities, while the current high coal prices, are bound to pay reclamation bonds at a new price standard for the next five years at least.

Furthermore, the results of this study also see that companies categorized as large scale companies, or have production levels of more than 1 million metric tons per year, have higher levels of compliance with their obligations to pay reclamation bonds. The increase in reclamation payments from large companies increased significantly after the regional regulation was enacted, which is about 120 percent as shown in figure 4.5. From the results of interviews, this is caused by two main factors; a stronger capital structure, and also supervision by the government that has been more focused on large scale companies. The second reason is the perspective that must be changed because the government must open access controls to all levels of the company.

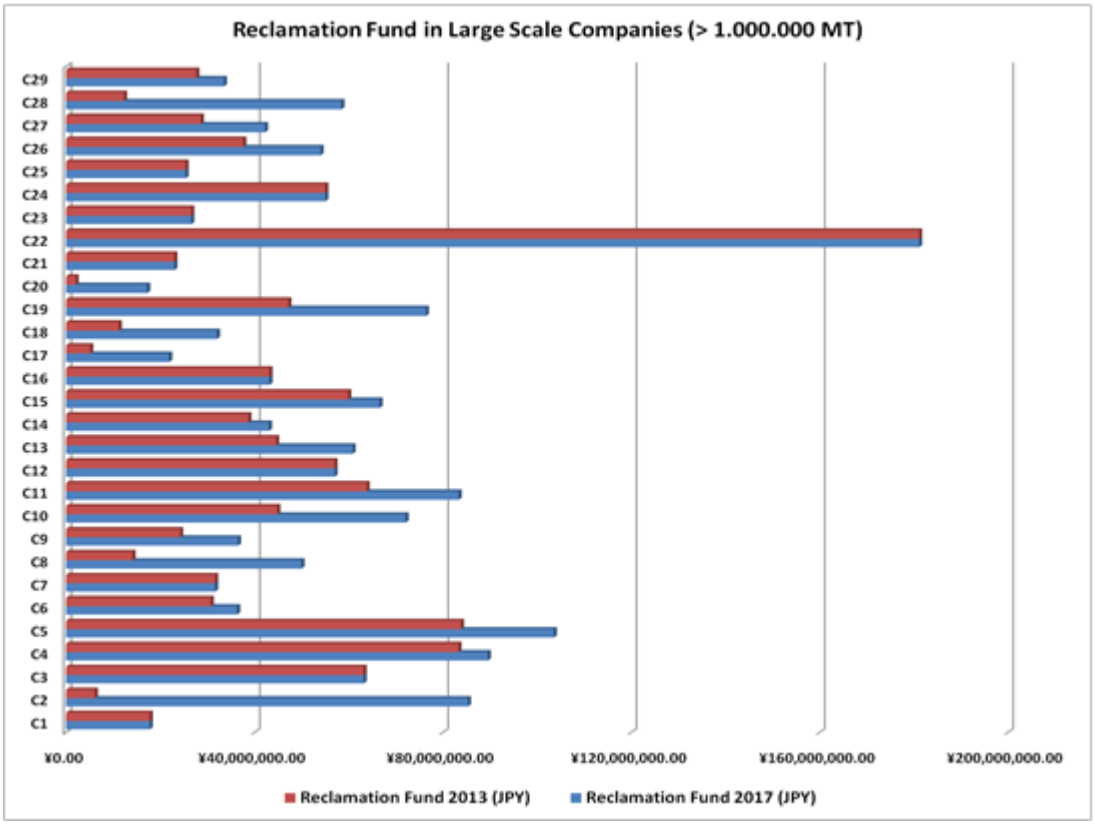

Figure 4.5. Reclamation Bonds on large scal companies before 2013 and after 2013

4.2. Discussion

4.2.1. Instrumental Level

This regional reclamation and mine closure commission works in accordance with the provisions of Article 141 of Law No. 4 of 2009, which is mentioned only to supervise at the provincial and municipal / district levels. The Reclamation Supervisory Commission, which consists of legal and reclamation experts, has a very important role because it is given the legal authority to assist the Governor by investigating and receiving reports from the people/citizens related to violation in reclamation activity as state in the East Kalimantan Governor Regulation number 53 of 2015, Article 5.

As noted earlier, one of the most serious issues in East Kalimantan is a weak monitoring system. Its monitoring system is very normative by relying on the function and role of the Mining Inspector which amounts to only 29 people in East Kalimantan to inspect over 1000 licenses. Indeed, the number of inspectors is very inadequate compared to the existing mining work area. Aside of that, the functions and duties of mining inspectors are very broad. Article 141 paragraph (1) of Law Number 4 Year 2009 states that the task of the Mine Inspector is to perform the supervisory duties of:

- Technical Aspect;
- Conservation of mineral and coal resources;
- Occupational Of Safety and Health;
- Safety of mining operations;
- Environmental management, reclamation and post-mining; and
- Mastery, development, and application of mining technology.

Here one of the tasks of the mine inspector is to supervise reclamation and post-mining activities, but because the other scope of work is also wide, the operational area is large, while the number of mining inspectors is not comparable, the impact of the effectiveness of the mining inspector's tasks is very low. Based on the explanation, the initiators of East Kalimantan provincial regulations on the implementation of reclamation and post-mining formed a commision specifically to do supervision on the implementation of reclamation and mine closure. The establishment of these commision is seen as a breakthrough in the inability or ineffectiveness of mine inspectors or other regional apparatus to supervise reclamation and post-mining activities.

However, it should be noted that the establishment or supervision of this commision or institution does not overlap with existing agencies, or conflict with legislation.

If thoroughly studied, this local regulation do not provide a clear justification of the technical content contained therein. Although intended to prioritize environmental sustainability, but still leave a gap that will be in account if there is one party that is not satisfied. A simple example is the 80 percent target for the reclamation area. Many parties will ask the basic calculations or theories that explain the statement, because in the regulation there should be reward and punishment for the achievement or absence of a target. Fortunately, the government has not been firm in enforcing this regulation so that there has been no significant fluctuation in the mining company. Because parliament is urged by the public to immediately issue this regulation, the process is very fast and many substantial things are missed. In fact, they forget to include deadlines when the good reclamation is to be achieved, 1 year, 2 years, or maybe even 10 years. Each company is still free to interpret it. Whereas, according to the European Environmental Agency in the framework they develop, the time targets and deadlines must be established from the beginning in order to measure their effectiveness by set of criteria and within a certain time period.

Compared to China, many similarities are found in terms of how the government regulates reclamation and mine closure. Departing from the dependence on mining products as a driver of the country's economy, as well as Indonesia, China also has difficulty in balancing rapid national economic growth and environmental protection. As Cao (2007) points out, While

supplying much-needed energy, the mine in China has suffered from many problems: substantial environmental damage, low recovery rates, unlicensed and irrational extractions, and poor safety records, among which '' the environmental it is possible to have the most widespread and long lasting repercussions.

Another similarity that can be found in the existing reclamation and mine closure regulations in China and Indonesia is that the structure of the contents of the regulation is initially still very general, non-binding, and dispersed in other regulatory regulations. However, China started early to include reclamation and mine closure as an issue that should be included in more specific regulations than Indonesia, in 1988 through the Regulation of Land Reclamation (RLR). It defines land reclamation as ‘‘the activities in which the land destroyed by extraction, subsidence and reoccupation,etc. during the process of production and construction is to be restored to a reusable state through certain measures’’ (Art.2, RLR). In terms of establishing specific regulations on reclamation and mine closure, Indonesia lags behind China where Indonesia has only just begun incorporating the regulation in 1995 through a Ministerial Decree of Mining and Energy at that time. It only regulates in general the obligation of reclamation without any technical guidance. When China had incorporated reclamation bonds in RLR in 1988, Indonesia only incorporated the same in more technical terms in 2008 through Regulation of the Minister of Energy and Mineral Resources number 18 of 2008 on reclamation and mine closure. This regulation is the starting point for the reclamation and mine closure in Indonesia especially with the reclamation bond scheme.

To conclude, China and Indonesia with all the characteristics of government from the national, provincial and district levels, have similar problems from various aspects. It turns out that legal uncertainty over people who violate the regulation of reclamation and mine closure, as people expect to be prosecuted by the reclamation and mine closure commission in East Kalimantan, also occurs in China as described by Cao (2007), that ambiguity in the rewards and punishments, and the paucity of incentives adds to the difficulty of implementing the reclamation laws and regulations, but rather provides the opportunity for corruption and regulation. However, it must be admitted that China seems more prepared and responsive to the issue of reclamation as described by Hu (2014) on the situation of constitution and construction of the standard system of land reclamation in China compared to Indonesia which can be seen in tables below.

Table 4.1. construction of standard system of land reclamation in China

Item	No	Name of standard	Status	Preparation	Degree of urgency
General Standards	1	Terms of land reclamation.	N/A		★★★
	2	Charting norm of land reclamation project	N/A		★★
	3	Calculation method of land reclamation performance	N/A		★
	4	Test regulations of land reclamation	N/A		★★★
	5	Quality control standard of land reclamation	Issued		★★★
Investigation	6	Damage prediction norm of reclaimed land	N/A	Under preparation	★
	7	Investigation technology specification of land reclamation	N/A		★★★
	8	Survey technology specification of land reclamation	N/A		★
Assesment	9	Adaptability assessment guideline of land reclamation	N/A	Under preparation	★★★
	10	Assessment guideline applied after land reclamation	N/A		★★
	11	Environmental impact assessment guidelines of land reclamation	N/A		★
Conseption	12	Preparation regulations of land reclamation plan	N/A		★
	13	Preparation regulations of land reclamation scheme	N/A		★★★
Design	14	Project construction standard of land reclamation	N/A	Under preparation	★★★
	15	Preparation regulations of land reclamation plan design	N/A	Under preparation	★
	16	Stage plan ofland reclamation	N/A	Under preparation	★
	17	Annual implementation plan of land reclamation	N/A	Under preparation	★
Budget	18	Cost estimation standard of land reclamation	N/A	Under preparation	★★★
	19	Budgeting rules of land reclamation project	N/A		★
Construction	20	Construction norm of land reclamation project	N/A	Under preparation	★★★
	21	Acceptance check regulations of land reclamation project	N/A	Under preparation	★★★
	22	Construction supervision norm of land reclamation project	N/A		★
Monitoring	23	Monitoring technology specification of land reclamation	N/A		★
Management	24	Management regulations of land reclamation project fund	N/A	Under preparation	★★★
	25	Management regulations of land reclamation project implementation	N/A		★★

Source : Hu (2014), on Analysis of mine land reclamation regulation system from a new public management perspective

Table 4 .2. Mine reclamation standards/codes in Indonesia

No	Standards/Codes	Code Number
1	Procedures for determining the quality of land on mining land for revegetation	SNI 03-6250-2000
2	Statical testing for acid mine drainage identification	SNI 6597:2011
3	Acid water treatment	SNI 7742:2011
4	Procedure of top soil management in mining activities	SNI 6621:2016
5	Procedures of the overbuden management for the prevention of acid formation in coal mine activity	SNI 7082:2016

Source : National Standardization Body of Indonesia, 2018

4.2.2. Institutional Level

Based on the framework developed by the International Union for Conservation of Nature as reference in conducting research, to access the institutional level should consider the organizational structures, accountabilities, strategies and programs and budgets. Furthermore, Based on the results of interviews with the Reclamation and Mine Closure Supervisory Commission (I1), it is known that *human resources are a very influential factor in the implementation of Supervision conducted by the commission, where in the initial forming , the number of Commissioners are 7 (seven) people, now only consists of 4 (four) people because there are some members of the commission who resigned*. In fact, one of the commissioners who resigned was the head of the commissioner. The commissioner from the environmental agency also resigned, and one other person was appealed as the central government's Mine Inspector. In addition, human resources such

as the availability of administrative staff is also complained by the commission, because currently only one staff member available in the commission.

To find out more about the factors affecting reclamation and post-mining supervision by the Commission, the authors interviewed one of the commission members who did not want to be named or the author give code I1. According to him/her, "*the work done by commission can not run optimally because there are some obstacles". Further according to him/her, "Local Regulation No. 8 of 2013 and East Kalimantan Governor's Regulation No. 53 of 2015 on Reclamation and the Post-Mining Supervisory Commission should be revised, especially regarding to membership of the commission". The main cause is, the three of the commission members was resigned because they prefer the previous job. I4 states, "membership of the commission contained in existing regulations just like non-binding membership , so it is weakened the commitment of commission members to carry out their duties until the end of the period"*. Another crucial issue in the commission is the unresolved disagreement over the recommendation in case of environmental crime indication in the implementation of reclamation as mandated in Regulation No. 8 of 2013 as one of the commission's duties. In the last plenary meeting, within five members of the commission, only one member of the commission agreed to provide a recommendation of a criminal offense from the results of the supervision performed, while the other 4 (four) members of the commission did not. This makes the reclamation and post mining commission into the spotlight by the community because the community expects the assertiveness taken in every decision or recommendation given to the Governor.

Other factors that greatly affect the performance of the reclamation and post mining commission are the facilities and infrastructure. The lack of facilities and infrastructure owned by the Reclamation and Post-Mining Supervisory Commission may affect the handling of reported issues. From the results of interviews with the Reclamation and Post-Mining Supervisory Commission (I4) obtained information that "*our work space is still merged with the building of the Department of Energy and Mineral Resources of East Kalimantan Province". The Reclamation and Post-Mining Supervisory Commission should have its own office, so that work can be completed internally. "We desperately need a comfortable working situation". "We are also not supported by facilities and infrastructure, such as operational vehicles that are still using a hired vehicle. While computers, laptops, and other office equipment are available and support the work but belong to Energy and Mineral Resources Agency*. In fact, the interviewee revealed that the work space that is now being used is still not feasible because of its size is veri small. The Reclamation and Post-Mining Supervisory Commission found it difficult to work because the office facilities they got were still far from comfortable.

The budget issues arose as an obstacle for the reclamation and post mining commission. Budget is a tool to assist a work device in the implementation of the functions of planning, coordination, supervision and also as a work guide in carrying out activities for the spesific purpose. Based on interviews with Reclamation and Post-Mining Supervisory Commission (I4) known that the budget owned by the Reclamation and Post-Mining Supervisory Commission Still attached to the Department of Energy and Mineral Resources of East Kalimantan Province. The budget, among others,

only for office stationery and salary. As for supervision activity, the Regional Reclamation and Post-Mining Supervisory Commission submits proposal to the Department of Energy and Mineral Resources. Currently Regional Reclamation and Post-Mining Supervisory Commission proposed to have Technical Officials and Budget Authorization Officials to simplify the planning and budgeting process. This is also reinforced by the statement of informant 2, which states;

> *(I2) ..... indeed the budget, facilities and infrastructure owned by the Commission is still lacking. Provincial government's financial condition is insufficient, yet the funds are still sorted according to the needs. But the environment remains our priority.*

In addition to the reclamation rate comparison as a primary outcome in this study, before and after reclamation regulation enacted, the implications of this policy can also be somewhat illustrated by creating a degree of priority of the issues to be evaluated in this policy. Although it is based on small number of informants, but with purposive sampling, the level of informants knowledge on this issue can be used as a preliminary picture. The table below shows the policy implications of the interviews conducted.

Table 4.3. Policy implications

No	Issues	Percentage	Rate
1	Reliable references to justify the content	16.67%	High
2	Measurable Objectives	0.00%	Very High
3	The clarity of Responsibilities in implementing the policy	100.00%	Very Low
4	Overlapping tasks and duties	44.44%	Moderate
5	Adequate Resources in implementing the policy	0.00%	Very High
6	Adequate standards and procedures	37.50%	Moderate
7	Strong enforcement	33.33%	Moderate
8	Stakeholders support	62.50%	Low
9	Good response in society	50.00%	Moderate
10	Improvement in private sector behaviour	50.00%	Moderate
11	significant impact in outcome level	Data	

Notes :

Degree of Priority

Totally supported by informant	Very Low
>50-75% supported by informant	Low
>25-50% supported by informant	Moderate
>0-25% supported by informant	High
Totally unsupported by informant	Very High

4.2.3. Behavioural level

Organisational behaviour actually refers to the behaviour of the people in the organisations because organisations themselves do not behave .It is an accepted fact that an organisation can develop only when its people are developed. Organisational behaviour is a field of study that investigates the impact that individuals, group and structure have on behaviour within organisations. It covers three determinants of behaviour within organisations, individuals , group and structure. It is an applied field because it applies the knowledge gained about individuals, and the effect of structure on behaviour, in order to make organisations work more effectively.

Based on the framework developed by the International Union for Conservation of Nature to evaluate the behavioral level in policy evaluation, two things to look at are actions taken by stakeholders in responding to the policy made, as well as the behavior patterns that are formed within an organization in implementing the policy. In the perspective of government, with Regional Regulation No. 8 of 2013, the Provincial Government should work quickly in responding to the regulation by establishing a Reclamation and Mine closure commission. In fact, since it was issued in 2013, the Reclamation and Mine closure commission was formed in 2016. This is similar to statement by the informant from the Energy and Mineral Resources Department who said,

(I1) .... indeed, the formation of reclamation and post mining commissions has been delayed due to many obstacles, such as having to wait for the issuing of the Governor Regulation and the recruitment system

This seemingly slow response is very unfortunate by the people who really expect this commission to be able to work to solve the problems that exist today. On the other hand, in terms of company behaviour, once these regulations are issued, they feel somewhat confused because they are considered to have similar tasks and functions to the Mine Inspector. This is as argued by the informant (I6)

(I6) .... There should be only one institution that focuses on supervising mine reclamation, in the presence of commissions and inspectors, This may even lead to confusion or further different standards of supervision

Following the establishment of the reclamation and post mining commissions, many environmentalists and communities have doubts about the capacity of the commission. Based on observations of phenomena occurring in the community, they argue; this commission does not show any sign of a capacity to deal with the mine reclamation problems in East Kalimantan. Whereas the Reclamation Supervisory Commission, which contains legal and reclamation experts, has a very important role because it is given legal authority to act to assist the Governor by investigating and receiving public reports, then issuing criminal or civil recommendation as set forth in East Kalimantan Governor Regulation No. 53 of 2015. In fact, there had been a demonstration at the Governor's Office that wanted the commission to be dissolved.

When viewed from the performance of this commission for six months, indeed this commission has not fully able to use its authority as mandated by the regulation, especially in providing recommendations of legal action on environmental crimes. Yet, this is necessary to be carefully observed. On the one hand, there is a need for assertiveness in enforcing environmental regulations, but on the other hand, to provide recommendations for environmental crimes, they must prepare for various possibilities, such as the adequate knowledge aspect of environmental criminal law as set forth in Law No. 32 of 2009. Commission members should Really believe and learn that their recommendations really fulfill the criminal element. In addition, political factors may also be considered by the commission, because almost everyone knows that the mining industry involves many actors who have influence and power.

Regardless, the work system of the reclamation commission and post mining is also seen to be less than optimal. There is an impression that, it is a little late in formulating work procedures, because it must be realized that what happens now is, there are 3 government instruments that oversee reclamation, Energy and Mineral Resources Agency, reclamation and mine closure commissions, and Mine Inspectors. Although currently still working in a command by the Energy and Mineral Resources Agency through the general mining Department, there is still ambiguity in the implementation of supervision of reclamation by the commission and the Mining Inspector. This is reinforced by informant 3 and informant 5 ;

I (3) and I (5) .... we still align and try to make good operational procedures, because basically, reclamation supervision is technical and requires special skills. What is being designed is the distribution of tasks and how the work steps

Proceed to a mining company perspective, the private sector response to regional regulations number 8 of 2013 varies. According to Informant 6 (I6);

I (6) .... this regulation adds our concern to the environment especially reclamation, although in practice there is a standard difference between commission and mining inspector

However, this statement is not entirely valid, because in reality the level of reclamation achieved did not increase significantly. Other evidence, routine reports on environmental management including reclamation have not been continuously sent to the Department of Energy and Mineral Resources,

making it difficult for officials to conduct recapitulation and analysis. This reflects that, the implementation of this regional regulation has not brought an effect that can bind mining companies to perform their obligations.

The level of behavior in obeying the rules indicated by the mining company is usually also based on the size of the company scale. Companies that have bigger productions, or in other words, have a fairly stable capital strength, it will be more consistent to spend their own funds to invest in things that will not directly benefit them, for example environmental pollution prevention funds in water, soil, and air, or mine accident prevention funds. In terminology, the funds that have been spent do not increase the purse of profits, but will prevent them from spending more money in the event of environmental pollution or fatalities. In contrast, small scale companies think more about making the most profit, rather than thinking of things that have not happened yet.

It is interesting to note and start thinking for future solutions, because small companies normally are given a small area to be mined, and a small amount of reserves. Perhaps this could be seen as a dillema occurring in the East Kalimantan mining community, because the gap is huge. The government (in quotes) seems unable to make the regulation applicable for all companies. If the government wants to apply the ideal concept in environmental management, it certainly requires a lot of funds and incriminates small scale companies. On the other hand, if the government lowers the environmental management standards that mining companies must meet, it is a benefit for large-scale companies in an unfair context, whereas the impacts of their activities on the environment are significant. Indeed, the government has

never tried to categorize environmental management based on the scale of the company, and put it in the regulation. On one occasion, one of the Directors at the Ministry of Energy and Mineral Resources said that they can not distinguish the standards that companies must adhere to in managing the environment, because basically mining is a capital-intensive, technology-intensive, and risk-intensive business. In the case of issuance of permits by the local government without considering the financial strength of the company, otherwise it is only because of a political interest behind it, the ministry expects the local government to solve the problem as a consequence of local autonomy / decentralization proposed by the local government itself.

To conclude, the granting of licenses should consider various aspects of the technical and administrative sides. Accurate calculation of resources and reserves, mine life, and production capacity plans are indispensable and related to environmental management efforts. The table below illustrates how two companies with similar levels of production, but have different size areas and amounts of reserves, differ from their efforts in managing the environment, based on the amount of costs incurred.

Table 4.4. Environmental cost comparison from 2 companies in 2013

Companies	**Production Rate (metric tons)**	**Area (Ha)**	**Permit Period**	**Environmental Cost (annualy)**
Company X	± 2.5 million	2000	6 years	± 5 billion (Rp)
Company Y	± 3 million	21,000	20 years	± 10 billion (Rp)

Source : author (from mining company's reports)

4.2.4. Outcome Level

From the results of data collection on policy evaluation output indicators, there is already a fairly clear picture that the implementation of regional regulations number 8 of 2013 still needs to be improved. The decrease in the reclamation rate, even insignificant, illustrates that the government has not been able to increase the reclamation area through administrative controls or direct supervision, even though the government actually has the authority to do so. Furthermore, another influence factor is the big number of companies in East Kalimantan, causing the supervision can not be conducted optimally. In another word, There is a significant gap between the realization and the approved plan.

This is also reinforced by the informant 7 (I7) and 8 (I8) statements which are the local community surrounding the mine and do not want to be named,;

I7 and I8 .... "Although it is performed side by side, the company's environmental management is perceived differently. Larger companies tend to better manage the environment than small companies. We can feel it from the quality of water, dust, and air generated from their activities".

This should be a concern even though more detailed observations are required, since environmental management standards should be the same for all companies. The performance of the reclamation and mine closure commissions is now clearly in the spotlight because it is considered incapable of producing concrete performance to the public. Such as a demonstration conducted by NGO Jatam on October 7, 2016, in front of the East Kalimantan

provincial governor's office protesting the lack of courage of the commission in taking action against environmental violations related to reclamation. They said, "There is no serious institution to solve this problem because the mining terrors are continuing because there are 232 mine holes in Samarinda City and 632 in East Kalimantan that are not reclaimed." The Commission is like its predecessor, the Environment Agency and Energy and Mineral Resources Agency which helpless in front of mining companies". It's really a stabbing comment from community representatives that the government can not keep on leaving. Because the nature, supervised by the government, has not guaranteed the level of reclamation success can be achieved as desired (as shown in figure 4.6), more so if only continue to bow to the political forces behind the mining company. We can not only shout about the environmental sustainability otherwise can not do anything while the environmental violation keep in line, and certainly the government should not allow this rhetoric to continue.

Figure 4.6. Examples of more and less succesfull sites 6 months after revegetation

CONCLUSIONS

5.1. Conclusions

From the on-going evaluation process to East Kalimantan Local Regulation number 8 of 2013, on Reclamation and Mine closure, it can be concluded that:

1. As shown in figure 4.2, the disturbed area has doubled in size in two periodic observed in this research, but the reclamation bond (figure 4.4) has increased only 20%, suggesting lack of compliance and illustrates the implementation of the regulation, which has been running for four years, still does not fully meet what is desired of the objectives of the regulation. Not only look at the results, but also from the process performed by the actors inside. The Reclamation and mine closure Regulations, initiated by the East Kalimantan Provincial Legislative Council, are primarily aimed at addressing reclamation and mine closure issues that cause environmental impacts, which can bind mining companies to carry out their obligations and provide deterrent effect to the violators.

2. Instrumentally, this Regional Regulation has actually referred to the reclamation and mine closure regulations in Indonesia which have used the precautionary principle proposed by International Union for Conservation of Nature (IUCN). As shown in figures 4.3 and 4.4, China and Indonesia differ in response to demands for economic balance and environmental protection. While China already has 25 validated reclamation standards, compared with Indonesia which only has 5.

However, the existence of reclamation and mine closure bonds illustrates that the government wants concrete proof of mining companies to run their activities in an environmentally oriented manner. The existence of time constraints in conducting activities, both administration and field activities, is actually also a government effort in preventing the occurrence of environmental impacts. Unfortunately, in the Regional Regulation has not set the membership mechanism that prioritizes commitment. The withdrawal of three people from seven members of the commission added a big question to the effectiveness of this regulation to be implemented. There are also high degree of urgency for measurable objectives and scientific evaluation of technical content.

3. Institutionally, The unfavorable results of the reclamation and mine closure commissions is still an issue that can not be resolved yet. Beyond the delay of establishing this commission as mandated by Local Regulation number 8 of 2013, this commission has never once issued a recommendation to follow up on environmental violations, for which further criminal sanctions can be imposed. The classic problems occured all over the place seem to continue, where a government can not act decisively when it comes to major industry and political interests involving the authorities. Apart from the political issue, the commission itself is not supported with adequate funding, facilities and infrastructure. Vehicles for example, commission members must hire a vehicle for field inspection. Funds provided by the government were only enough to conduct inspections at 8 companies a year. Compared with

approximately 400 mining companies, the effectiveness of the performance of this commission has not been achieved. 3 members who quit the commission may be a reflection of their dissatisfaction with government support. The Commission also still has an unresolved vital task of formulating technical and administrative work standards, primarily to avoid overlapping work and to strengthen communications with the Mine Inspector and The Agency, all of which are obliged to monitor reclamation.

4. Behaviorally, the government's response to immediately establish a reclamation and mine closure commission after the issuance of Local Regulation No. 8 of 2013 is considered very late. Once formed, the reclamation commission is still constrained to synchronize with other instruments. The public's expectations to see the assertiveness of the reclamation commission in dealing with reclamation issues in terms of environmental violations are only in people imagination. Moreover, the parliament that once was eager to issue this rule seemed to disappear to follow up its implementation. Observing the short time needed to issue this rule, the very masive public pressure of the time seemed to be a key driver rather than thinking about the long-term sustainability of the commission. On the other side, from the perspective of mining companies, the existence of this regulation is of concern but does not seem to have much effect on the business actors, either in administration or field activities. The steps taken by the government are more likely to handle a case than prevention. Particularly for small-scale companies, the sustainability of production is everything for surviving in the mining world rather than paying attention to commissions that make

environmental requirements more stringent and require more funding investments as illustrated in Figure 4.6.

5. For the outcome level, generally there is a decrease in the evaluation indicators that have been set. This can be related to the deviations that occurred at the previous level, especially institutional and behavioral. To summarize from figure 4.2 to 4.5, the reclamation rate decreased from 67.91% to 62.98% while the revegetation ratio to disturbed land increased slightly from 42.55% to 43.29%. However, although the disturbed area doubled in size after the regulation issued, the company's reclamation guarantee only increased by about 20%.

5.2. Recomendations

5.2.1. For Policy Makers

1. The content contained in Local Regulation No. 8 of 2013 on reclamation and mine closure has the spirit to enforce regulations and protect the environment from the negative impacts of the mine, but unfortunately has not been supported by a clear theoretical and target basis. Initially, this Regulation aims to authorize the Provincial Government to take legal action on permits issued by the Regency. Yet, with Act No. 23 of 2014 on Regional Government, where all of the existing mining authority in the Districts/Regencies transfered to the provincial government, then in fact this goal has been automatically achieved even though through other legislative instrument. However, since this regulation was initially initiated by the regional parliament, the Department of Energy and Mineral Resources should be able to initiate promoting the review of this

regulation by raising matters that make this regulation is no longer relevant to current circumstances. Some of the things that can be used as a basis for negotiating with parliament are; the fact that it does not have initial mapping of the overall reclamation rate and reclamation bonds that have been made by the company, resulting in the absence of a deadline to evaluate this regulation based on the value of reclamation ratio as the spesific objective to be achieved. Equally important, how this regulation can later make the commission membership system to be bound by the responsibilities of its members, and also provides a clear scientific justification of existing technical content.

2. Institutional strengthening of mine land reclamation and mine closure commission is urgently needed. The reclamation and mine closure commissions should immediately prepare the Standard Operational Precedure, including synchronization, and coordination of duties with the Mining Inspector and the Department of Energy and Mineral Resources. Furthermore, to fulfill its obligations as well as the demands of the public who want the commission to be more courageous to take decisions on environmental violations, commission members must begin to establish a clear and systematic procedure of legal action, involving all relevant stakeholders, so that the responsibility and accountability of the recommendation is not only charged to the commission, but all officials who have authority in implementing it.

3. To address the inadequate funding and infrastructure issues, consistently providing good results and performance through decisive act by bringing environmental violators to the court, hopefully can trigger the fulfillment of

budget and facilities. However, considering innovation ideas by providing geographic information system and online reporting system will encourage obedience of the mining company. Moreover, to follow up the ideas, the competent staff will be required in order to handle the system such as in the field of remote sensing. Although some big companies have done this, the next challenge is to apply it to all levels of the company, whether large or small scale.

4. Governments should implement strict control through checklist before the presentation of the company's annual report. Under the regulation, the company can not perform activities if the annual work plan report has not been approved. By evaluating the achievements of the previous year's reclamation activities, coupled with the involvement of NGOs in the presentations, may improve corporate compliance.

5.2.2. For Future Research

1. Exploring and comparing more spesific about mine land reclamation in the other countries from similar background and characteristic.

2. Addressing the succesfull reclamation criteria from the perspective of biodiversity sustainability using examples from mining company that its mine closure stages has been finished and accepted by government.

3. Exploring injuries, fatalities, and accident records related to delayed reclamation progress.

4. Continue addressing not only “effectiveness” of the policy as has been done in this study, but also “efficiency, coherence, and relevance” aspect in the future as stated in EEA framework for environmental policy evaluation.

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